

Application No. 10/673,940
Amendment "C" dated December 15, 2005
Reply to Office Action mailed September 29, 2005

REMARKS

These remarks and the accompanying amendments are responsive to the final Office Action mailed September 29, 2005 (hereinafter referred to as the "Office Action"), having a shortened statutory period that expires December 29, 2005. At the time of the last examination, Claims 1-6 were pending. By this amendment, Claims 1-6 are cancelled, and new Claims 7-10 are added. Accordingly, upon entry of this amendment, Claims 7-10 will be pending for further consideration by the Examiner. The cancellation of Claims 1-6 renders moot all prior rejections. Nevertheless, it will now be explained how new Claims 7-10 are not anticipated by nor rendered unpatentable over United States patent number 5,351,245 issued to Pregont et al (hereinafter "Pregont").

In Section 1 of the Office Action entitled "Response to Arguments", the Office Action states as follows:

Applicant assert that the cited prior art reference (US 5,351,245) teaches the number of radio frames of a logical to be two in either data rate, as opposed to the number of radio frames of a logical channel is determined according the transmission rate of the physical channel in the case of the present invention. However, the cited prior art reference shows 4 radio frame in the category of RCH "logical channel" at one transmission rate and 2 radio frames at another transmission rate, reading the claimed invention. In other words, since applicant fails to define or distinguish "a logical channel" recited in the claim, a channel represented by the RCH radio frames in the prior art reads on the "logical channel" and the

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logical channel has a different number of radio frames depending on a transmission rate, as explained below.

In consideration of these comments, Claims 1-6 are cancelled, and new Claims 7-10 are added.

New claims 7-10 clarify the meaning of the claimed "unit" which is information of a logical channel. That is, the logical channel unit is an information unit that is to be subjected to error detection. New claims 7-10 further clarify the relationship between the number of radio frames on a physical channel in to which each logical channel units is mapped and the transmission rate of the physical channel.

Claims 7-10 are supported by the descriptions of page 4, lines 15-20 (paragraph [0009]) and page 38, line 14 to page 39, line 18 (paragraphs [00289]-[00294]) of the specification, Figures 13A-13C and Figures 72-74, and so on.

Claim 7 is as follows:

7. A communication apparatus comprising:

means for forming logical channel units each of which is to be subjected to error detection, each logical channel unit including information of a logical channel and an error detecting code added to the information;

means for mapping the logical channel into a physical channel such that a number of radio frames of a fixed duration on the physical channel into which each logical channel unit is mapped increases as a transmission rate of the physical channel decreases; and

means for transmitting a signal of the logical channel over the physical channel.

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In this way, the subject matter of claim 7 is characterized in increasing the number of radio frames of the fixed duration on the physical channel into which each logical channel unit (that is to be subjected to error detection) is mapped as the transmission rate of the physical channel decreases.

This feature resolves an overhead issue when an error detecting code is added to each logical channel unit. This issue will be described in more detail. When the transmission rate of the physical channel is high, the amount of data in each radio frame of the fixed duration is great so that the ratio of the error detecting codes to the transmission data (whole data flowing through the transmission path of the physical channel) will not be very high even if the number of radio frames into which each logical channel unit (containing an error detection code) is mapped is small. In this case, the overhead of the error detecting codes is also low on the whole. In contrast, when the transmission rate of the physical channel is low, the amount of data in each radio frame is small, so that the ratio of the error detecting codes to the transmission data would be high if the number of radio frames (of the fixed duration) into which each logical channel unit (containing an error detection code) were mapped were small in the same way as when the transmission rate of the physical channel is high (please see page 39, lines 1-15 (paragraphs [00292]-[00293] of the specification, Figures 13A-13C and Figures 72-74). In this case, the overhead of the error detecting codes would be also high on the whole.

In the examples of Figures 13A-13C, when the transmission rate of the physical channel is 256 kbps, the number of radio frames on the physical channel into which each logical channel unit (each ACCH unit) is mapped is one. When the transmission rate of the physical channel is 128 kbps, the number of radio frames on the physical channel into which each logical channel is

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mapped is two. When the transmission rate of the physical channel is 64 kbps, the number of radio frames on the physical channel into which each logical channel unit is mapped is four. In this way, it is avoided that the overhead of the error detecting codes is high when the transmission rate of the physical channel is low.

In the example of Figure 13A, when the transmission rate of the physical channel is 32 kbps, exceptionally, the number of radio frames on the physical channel into which each logical channel unit is mapped is four, which is the same number of radio frames as in the case of 64 kbps. However, of course, it is possible to make the number of radio frames more than four to further decrease the overhead when the transmission rate of the physical channel is 32 kbps.

In contrast, Pregont does not disclose the above-mentioned feature of the subject matter of claim 7.

Figure 3B of Pregont illustrates a method for generating an RCH signal. A CRC is added to an RCH information block 319 of 22 bits, resulting in block 321. Afterwards, a 42-bit stream 327 is generated and is divided into two pieces 329 each comprised of 21 bits. The 21-bit pieces correspond to the 21-bit RCH field 213 in each frame in the superframe shown in Figure 2. In other words, the 21-bit RCH field 213 may contain either of two RCH pieces 329 when the RCH information is mapped into the superframe (please see the paragraph bridging columns 2 and 3 of Pregont). As a result, in accordance with Figure 2 of Pregont, a single CRC is added to two "R" frames.

Therefore, in Pregont, in both cases of full-rate (Figure 2A) and half-rate (Figure 2B), the number of radio frames on the physical channel into which a logical channel unit (corresponding to the aforementioned 42-bit stream 327) that is to be subjected to error detection is mapped is two.

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Pregont do not disclose that the number of radio frames of a fixed duration on the physical channel into which each logical channel unit (that is to be subjected to error detection) is mapped is increased as the transmission rate of the physical channel decreases. Therefore, the subject matter of claim 7 is novel and is not obvious from Pregont. The same thing can be said for claim 9 (method claim) which corresponds to claim 7 (apparatus claim). Claims 8 and 10 are also patentable since they depend on claims 7 and 9, respectively.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

Dated this 15th day of December, 2005.

Respectfully submitted,



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